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AUTHOR Pisano, Thomas N.
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ABSTRACT

A computerized management system to improve efficiency was implemented for one year in a fifth grade classroom in a large metropolitan city in the southwest. A variety of computer application software packages were reviewed and selections were made for use in grading and prescriptive analysis. The teacher also developed a database of student information including grades, attendance, work evaluation, and parental contacts. Reading groups, objective mastery, review instruction, test analysis, and objective tracking were all conducted via computer software reports. The teacher taught the 32 fifth graders keyboarding skills and how to use a word processor, using the word processor as the medium of instruction instead of a textbook. Results of the program indicate that the computerized management system was a success and the positive effects of the program were experienced not only by the teacher, but also by the students and their parents. Favorable evaluations were made from the recorded data on the Iowa Test of Basic Skills in the areas of math, reading, and language arts. Appendices include correspondence; student, teacher, and parent questionnaires with tallies of the responses; lists of software and databases; grade reports; prescriptive analysis forms; and Iowa test scores. (DB)

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IMPROVING INSTRUCTIONAL EFFICIENCY THROUGH THE
IMPLEMENTATION OF COMPUTERIZED MANAGEMENT AND
PRESCRIPTIVE ANALYSIS

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BY

THOMAS N. PISANO

A PRACTICUM REPORT

Submitted to the Faculty of the Center for the Advancement of
Education of Nova University in partial fulfillment of the
requirements for the degree of Master of Science.

The abstract of this report may be placed in the School Practices
Information Files for references.

September, 1986

Running Head: INSTRUCTIONAL EFFICIENCY

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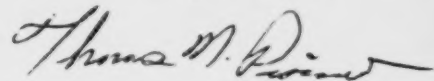
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Authorship Statement

I hereby testify that this paper and the work it reports are entirely my own. Where it has been necessary to draw from the works of others, published or unpublished, I have acknowledged such work in accordance with accepted scholarly and editorial practice. I give this testimony freely, out of respect for the scholarship of other workers in the field and in the hope that my own work, presented here, will earn similar respect.

Respectfully,

A handwritten signature in cursive script, reading "Thomas M. Prince". The signature is written in dark ink and is positioned to the right of the word "Respectfully,".

ABSTRACT

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Improving Instructional Efficiency Through The Implementation Of Computerized Management And Prescriptive Analysis.

Pisano, Thomas N., 1986: A Practicum Report, Nova University Center for the Advancement of Education.

Descriptors: Academic, Achievement, Administration, Applications, Computers, Computer Literacy, Computer Managed Instruction, Data Base, Efficiency, Elementary Education, Grades (Scholastic), Grading, Graphics, Individualized Instruction, Keyboarding, Objectives, Recordkeeping, Secondary Education, Spreadsheet, Student Evaluation, Student Records, Writing, Word Processing.

The author implemented a computerized management system to improve instructional efficiency within the classroom. A variety of computer application software were used for grading and prescriptive analysis in the fifth grade classroom. The teacher developed a data base of student information, and parental contact was conducted via grade sheet reports and word processed form letters. Keyboard skills were taught to the students during their Computer Science and Language arts lab periods so that word processing skills could be introduced. No textbook was used for language arts instruction. The teacher modeled the writing process on the word processors and the students used this medium to produce written assignments. Reading groups, objective mastery, review instruction, test analysis, and objective tracking were all conducted via computer software reports. This program took place during one school year.

Favorable evaluations were made from the recorded data on the Iowa Test of Basic Skills in the areas of Math, Reading, and Language Arts. Student demonstration of computer application skills was demonstrated throughout the year. The program was recommended to be adapted by other teachers in the author's school.

Appendices include surveys, changing test scores, model data bases, grade reports, and reading progress reports.

The Purpose

This practicum took place in a school in a large metropolitan city in the Southwest. The population of the city is 120,000 and has a varied range of socioeconomic levels. Business, industry, and tourism are the major occupations of the community.

The school district is one of the five largest in the state and covers 98 square miles. It features three high schools, four middle schools, and sixteen elementary schools. The district has a student population of 22,449 and an operating budget of 68 million dollars for maintenance, operations, and capital expenditures. The district is experiencing a sudden growth factor that is overtaxing the existing plants, causing overcrowded classrooms and facilities. Bond elections have been required to build four new elementary schools, two middle schools, and one high school over the next four years. Additional bond issues are currently under way to build even more schools as the area is being further developed. Portable classrooms and double sessions are being implemented until buildings are completed.

The author's school is in a newly developed section of the district. The school had a population of 386 students in the first year of service with a staff of 27. Presently, in the second year of service, the school has a student population of 756. Classroom sizes range from 28 to 35 pupils. All classes are self-contained with departmental ability grouping and/or curriculum grouping in the

4th through 6th grades. The school community standing is considered to be in the middle to upper socioeconomic level. A survey of the community homes reveals forty percent of the students to come from "latch-key", working parents not home after school, households. The survey reveals them to be well-kept and the student attendance is good. There has been an increase in mobility due to divorce, occupational transfer, and school boundary changes due to overcrowded conditions.

The faculty of the practicum school consists of the principal, 27 classroom teachers, a school psychologist, a media specialist, a reading specialist, a school nurse, a vocal music teacher, an instrumental music teacher, two physical education teachers, an art teacher, a speech and hearing therapist, two teachers of learning disabilities , and a teacher of the gifted. Several aides are also employed to assist with playground duties and to work with the L.D. teachers.

The author is a fifth grade teacher in the school and is the Program Area Coordinator, Computer Science for the district. There are thirty-two students in the classroom, many of whom go to other grade level teachers for their reading, math, and special subjects as based on ability level. There are seventeen boys and fifteen girls in the class. The homeroom is self-contained for language arts, but the author provides instruction to a mixed group in reading and math.

The amount of paperwork teachers are required to do increased during this school year with the piloting of a new

attendance program that was introduced at the first staff meeting in August. Teachers were required to keep track of absentees and early withdrawals during the school day, document them in a notebook by hand as well as the student attendance card, collate them on a weekly basis, and submit them to the office with signature. This new procedure, in addition to the amount of lesson planning, work evaluation, objective tracking, grade keeping, learning station implementation, parent communication, and report card calculation caused much concern among the staff as a whole. The problem is that the number of students in the overcrowded classrooms magnified the scope of these duties to the point where time was being taken from instruction to keep up with the management tasks.

Objective tracking, keeping records of student mastery of mandated curriculum objectives, is an integral procedure to determine the high quality of instruction that the patrons require of the district. The accountability of the classroom teacher to produce high scores on the yearly achievement tests causes an emphasis to be placed on the instructional time needed to raise these standards. In light of the advances being made in today's rapidly changing technological society, there must be a way to reduce the time spent on management. Thus one of the major goals of the Program Coordinator is to provide for the development of management programs that will give the teachers the ability to make better instructional plans and have more time to implement them.

A meeting was scheduled with the principal to identify the situation as an area of staff concern(Appendix A). In conclusion, the situation was discussed and identified as a problem. Steps for solution included:

1. List specific areas of management
2. Sequence procedural steps of implementation
3. Seek and evaluate software with potential solutions
4. Implement pilot program for problem solution
5. Survey staff, students, and parents during implementation
6. Final recommendations

The Program Coordinator used the first report period to accomplish steps one through three using parent conference times in November to inform parents of the pilot program and gather feedback.

The author chose recordkeeping, objective tracking in the reading program, grade keeping with calculation reporting, and student instruction of word processing as the medium for Language Arts instruction as the areas of management to improve upon. The student use of these computer applications was chosen to demonstrate that the time saved using the computer as a management tool would give the teacher more time for instruction. This time would be used to introduce a new area of instruction into an already overcrowded curriculum. The author's intent was to prove that computerized management could improve professional efficiency and also modeled for students to prove that they could

improve learning efficiency.

The principal of the target school stated, "I am always interested in ideas that help raise the level of instructional efficiency that lead to higher student achievement levels. The amount of paperwork required of instructors seems to be rising, especially compounded with our overcrowded conditions and larger class sizes."

The principal further stated, "Your goals for teaching word processing to our fifth grade students are reflective of the expanding technological changes in our instructional delivery system." (Appendix A).

The program was to be implemented at the beginning of the second report period and conclude at the end of the school year. To demonstrate that the management program will provide additional time for instructional purposes, the author will use the time saved to instruct the fifth grade Language Arts class in the use of the word processor. This area in the curriculum was identified by the principal as a target area of emphasis based on the low scores indicated on the Iowa Test of Basic Skills given the previous year (Appendix G). The author will use the word processor as the medium of instruction instead of a textbook. The time saved using management tools will be used to produce the materials necessary for this instruction to take place on the word processor. This practicum will be based on the research of that project

By the end of the school year grade calculation, reading

management, word processing, data base, and spread sheet programs will be available for all classroom teachers based on evaluation data of the pilot project with full implementation for the school year 1986-1987.

By the end of the school year printer application programs for bulletin boards, posters, word search, and crossword puzzle production will be available for all classroom teachers based on evaluation data of the pilot project for full implementation in the school year 1986-1987.

By the end of the school year 90% of the fifth grade students participating in the language arts program will be able to touch type at a minimum rate of twenty words per minute and be able to key in all written assignments on the word processors as determined by teacher observation.

By the end of the school year 90% of the fifth grade students participating in the language arts program will be on grade level as determined by the results of the Iowa Basic Achievement Test scores.

Research

Research indicated that many of the topics outlined in the problem statement have been well covered. Each has been detailed within its own entity and presented. The author will point out that the intent of this paper is to pull all of these independent

strands together and present coverage of a larger scope, the incorporation of each of these programs implemented within the spectrum of one classroom situation.

Researchers have shown that today's educators are faced with the dilemma of restructuring the delivery of instruction based on the changes required due to the shift from an industrial to an information based society. Technological advances have rapidly materialized and have become a factor to be dealt with in the school systems of America. Teachers have not been trained to work within automated systems and are trying to cope with new teaching methods using antiquated record keeping techniques.

Research conducted by Dr. Gail Thierbach Schneider for the University of Wisconsin-Milwaukee (1984), states that this is a time when considerable attention is being focussed on the educational system, teachers must look for ways to more effectively channel their energies toward the improvement of curricular programs and instructional strategies. The administrative applications that can be performed on microcomputers will allow for teachers to organize their time in such a fashion that their efforts will more directly relate to the educational delivery system. In addition, the tasks accomplished on the micro will support these endeavors and lead to an educational system which models the methods of technological advancement which it promotes.

N. J. Hartman's research shows that the effective management of educational systems requires the effective

management of information. Whether couched in terms of ongoing assessments to evaluate pupils and teaching strategies, the data required to efficiently deploy teaching staff or the demographic and social characteristics that suggest shifting system priorities, the needs are identical-accurate, timely and pertinent data for efficient and effective decision making.

For the majority of educational systems, the information about students required to administer schools, develop curriculum, evaluate programs and establish priorities, is provided through manual record keeping systems. Data is stored in a host of separate files-Student Records, Achievement Records, Office Index Cards, Transfer Books, etc.-which are manually summarized on a variety of forms for school staff, system administrators, or Department of Education Officials.

In research delivered to the Illinois State Board of Education by David Dimmlich and Urban T. Oen (1985), it is stated that one of the most critical functions performed by an instructor is the maintenance of student records. Regardless of the system in which you teach, complete and accurate records are a necessity. Only with accurate, reliable, up-to-date information which is easy to locate or retrieve can you make informed decisions about your students.

In A Report to the Secretary of Education, United States Department of Education, by The National Task Force on Educational Technology (October 30, 1984), instructional management is deemed the key to successful restructuring of the

educational system. For the student, technology-based education promises to help fit learning to the students's individual needs. For the teacher, it promises to keep track of the rapidly multiplying complexity of records that such learning requires. A classroom in which different individuals and groups move in their own patterns and at their own pace requires a good deal more monitoring than in a situation in which all students are expected to take the next step at the same time.

The computer's ability to manage large amounts of information quickly and logically offers the teacher a tool to keep track of varying rates of progress and individual problems without being overwhelmed by record-keeping demands. By removing these administrative tasks from the teacher's role, the technology will free the teacher to give more attention to the needs of each student. The conservation of teacher time gained through greater efficiency in managing individualized learning will be offset somewhat by the added demands of managing a more complex program. But it seems fairly clear that the learning gain from this trade-off will be large.

In choosing to computerize a reading management program, Jane Dundas Smith (1986) suggests that probably the most compelling reason to purchase textbook-correlated software is the efficiency of data management such a system offers. Reading instruction often requires teachers to individualize student work. Without a computer this is a record-keeping nightmare. With a good data management, storage, and retrieval program, the job is

much easier. A good management system will score diagnostic tests, correlate weak areas to existing instructional materials, keep records of student progress, and produce reports and summaries of student work.

Dr. Michael N. Milone Jr. extolls the word processor as the most useful educational software a teacher will ever find. In addition to turning the computer into the "ultimate typewriter," word processing software lets teachers develop activities and materials for virtually all subject areas. No other computer program combines the versatility, ease of operation, and convenience of a word processor.

Documentation compiled by the California State Department of Education (1985) states that teachers using word processors as media for writing instruction with students have gained higher results. Word processors are achieving considerable success as an aid in teaching writing because they provide the opportunity to focus on the creative aspects of writing such as putting ideas on paper and then editing them without rewriting each draft by hand. Students can therefore experiment more freely with organizing and editing their writing. This opportunity is an important factor in producing quality writing.

As hardware becomes cheaper and more prevalent in schools, word processing should become a readily available tool to be used for assignments in all subject areas. Teachers will need to be trained to use these applications for their own professional management before they will be able to lead instruction on a

student level.

Dr. Schneider (1984) states that sixty per cent of the nations schools have computers but the emphasis has been placed on Computer Aided Instruction and Computer Literacy. As more computers are added to these numbers, teachers and administrators will begin to access them for administrative purposes. Software can be purchased to allow for the use of Computer Applications. Computer Applications cover four distinct areas:

1. Word processing
2. Data base management
3. Spreadsheet calculations
4. Graphics

Once teachers have gained proficiency in the use of these applications then and only then will they be able to instruct students to use the same software to prepare them for emergence into an information-based workplace.

Shirl S. Schiffman (1986) suggests that teacher-led demonstrations and hands-on activities are both appropriate strategies for teaching students the function of major software applications and helping them develop confidence in tackling the applications they may encounter in the future. The best way to introduce tools is to demonstrate how you use the packages to help you with your instructional and administrative tasks.

The Method

To improve instructional efficiency, the author implemented staff, student, and parent surveys during the first report period to determine if the need for computerized management of educational data is a common concern (Appendix B).

Software for computer applications, reading management, grade keeping, and keyboard skills was procured, evaluated, and purchased during the first report period (Appendix C). Computer application software consisted of a word processor, data base, and graphics programs. Each program was selected with student use as a factor of consideration.

Class data was accumulated and management files were set up so that full implementation could begin during the start of the second nine week grading period (Appendix D).

Students were issued weekly grade status sheets in the reading, math, and language arts areas (Appendix E). Daily standings were given to individuals on a verbal basis if needed. Students were required to take home and have mid-term evaluations signed by parents and returned for documentation.

Students were given at least two fifty minute lab periods per week or more if the lab was available to begin work on keyboard skills. This training began during the second week of the first report period and continued until sixty percent of the students reached the fifteen words per minute typing rate as determined by the progress report displayed on the screens during training. This

was based on teacher observation of class participation.

When satisfactory progress was established in the keyboard area, students began instruction in the use the word processor. Students demonstrated the ability, based on teacher observation, to load, write, edit, save, and print documents before formal writings were assigned to be done on the word processor. Students then used the word processor to do all major writing assignments throughout the school year. Progress was based on grade level achievement as assessed by the Language Arts battery of the Iowa Test of Basic Skills which was administered in April.

Students began taking computer-graded unit reading tests after the completion of the second unit in the D.C. Heath Reading Series. Tests were checked, grades calculated, and reports of progress were sent home to parents to be signed and returned for documentation. Prescriptive analysis and grouping reports were used for follow up activities and objective mastery (Appendix F).

Bulletin Boards were produced using graphics software. Class Rules, Student News, Writers Wall, and Teacher Stuff were display areas where relevant information and copies of word processing documents were attached for observation and interaction by all.

The practicum program was an educational management program and a Language Arts program lasting the duration of the school year. The management of student data took place in the regular classroom during the school day. All management software was selected for use on an Apple IIe computer with 128k memory

upgrade, two disk drives, and an ImageWriter printer. The computer system was positioned at the author's desk for continual access when necessary.

Prior to beginning the use of management programs, teacher, student, and parent surveys (Appendix B) were conducted to determine the extent of the concern of those surveyed. The students were also taught keyboard skills during the first report period as part of their regular Computer Science program and extended into their Language Arts time slot to insure sufficient time for retention of skills. Students are regularly scheduled for two fifty minute lab sessions per week as a requirement of the Computer Science course. The additional two labs provided a total of four sessions per week for keyboard skills. Language Arts time lost during the first report period were made up during the remainder of the school year with the time saved using the word processors as the writing medium.

Keyboard instruction and practice took place in the computer lab which consists of sixteen Commodore 64 keyboards, disk drives, and color monitors with four printer stations. A fifty-two inch color stereo television is interfaced with the master computer station for large group introduction of software use.

Software selected for keyboard instructions was Master Type (Scarborough Systems Inc.) (Appendix C). This program was selected due to the high review status it has received on a national level and the incorporation of animated video arcade graphics format that is a high motivational aspect for this age group. The

program provides extensive feedback to the user on skill level and rate of speed progress after each wave of letters is attempted. Encouragement prompts are included in the report that indicate when each of the eighteen lesson levels have been mastered so that the program insures proper progression rate of each user.

Students worked in teams of two to each computer. Pairing is not an ideal situation for maximum learning, but is mandated by the class size and number of stations available. The software is in ROM Cartridge format to facilitate ease of loading and instant program access when the system is turned on. The terms keyboard, home row, shift bar, return key, words per minute, and upper/lower case were introduced as computer terms for insertion into a vocabulary bank to assure communication of instructional concepts. Students were required to keep lists of new terms and definitions in their work folders and/or in a file on their data disks.

During the first report period the author ordered the American Readers Computer Management System (D.C. Heath and Company) to manage the data necessary for the instruction of Reading in the text being used by the district. Level 5 of the series American Readers, Crossing Boundaries was the text being used for this program. The level 5 management program was selected to supplement the program in use because minimal teacher set-up is required.

The management program is based on the same management system that is shown in the teacher's edition. Each pretest and posttest in the teacher's edition have been rewritten on

a copymaster, using standardized format with multiple-choice. The students indicate their answers to the test questions on cards that can be read by the computer through a device called a card reader. The tests are then scored and analyzed by the computer, so the teacher can easily obtain class reports, and lists of students who should work on the same objectives.

The management program consists of two diskettes, the MASTER diskette and the DATA diskette. The MASTER diskette contains instructions, or programs, that tell the computer what to do. This diskette is protected which prevents the user from accidentally erasing the information stored on it. The student records will be stored on the DATA diskette. This diskette also contains information regarding the book level that is being used. It is only through the interaction of both diskettes that the management system will operate. The program will operate with one disk drive, but much disk swapping in the disk drive will be required to carry out the operation. This will be time consuming and greatly increase the chances of mistake as well as reducing the efficiency and accuracy of the management tool.

Implementation of this program began during the second report period. Time was provided to insure that proper class information was set up on the diskettes and remedial materials made available for student use of the prescriptive reports generated for objective mastery. The use of this system continued through the school year until the book was completed by the students.

Report Card (Sensible Software, Inc.) was employed as the general grade management program for the school year. This program was selected based on user friendly criteria. It provides thorough report generation, easy editing features, and a large number of class entry capabilities. Class rosters can be input in random manner. The program will place student roster in alphabetical order on either first or last name. It allows for group or student number insertion and can sort according to these names or numbers.

All grade criteria is available at the teacher's option. Teachers can place weight variations to different assignments to give tests and quizzes more value. The program is compatible with any grade report symbols used, A-F, 1-5, and even + and -. Class averages are displayed at all times along with the list of student grades. Absent students are not penalized for assignments not turned in unless the teacher enters a score of zero. Class grades can be calculated and printed out within thirty seconds at any time the teacher desires. Individual student reports can be generated with the same speed at any time on an individual basis or on a class basis. Students can be added, dropped, or transferred at any time. The program reminds the user periodically to make a backup copy of the data disk for archival purposes. The first report period was used to set up class lists and the program was implemented fully at the beginning of the second report period.

The word processing program chosen for management use was The Bank Street Writer (Intentional Educations Inc., Bank

Street College of Education, and Franklin E. Smith). This program was chosen with student use as a criteria. This program has been field tested by both teachers and students nation-wide to ensure that it complies with the standards claimed by the publishers.

The Bank Street Writer has three operating modes: WRITE MODE, EDIT MODE, and TRANSFER MODE. The program loads up and appears on the screen in the WRITE MODE for entry of data. When entry has been completed, The EDIT MODE is accessed by depressing the escape key. Once in this mode, all editing options are displayed on the top of the screen for selection. Options include: ERASE, UNERASE, MOVE, MOVEBACK, FIND, REPLACE, and TRANSFER MENU. The TRANSFER MENU is accessed by highlighting this option in the edit mode and depressing the return key. Once into the third menu area, the options are also displayed at the top of the screen. The options include: RETRIEVE, SAVE, DELETE, PREP, RENAME, PRINT-DRAFT, PRINT-FINAL, CLEAR, and QUIT.

This program is not a sophisticated program that would be used in an office situation, but it is sufficient for classroom needs and is easy for students to learn. It is sophisticated enough for students to learn the foundations of word processing and expedient enough to do most writing tasks necessary for this age group. This program was implemented for teacher use during the end of the first report period and implemented for student use during the beginning of the second report period.

Students began word processing by watching a demonstration of the program on the big screen television. The

author modeled a parent communication letter to the students by writing, editing, saving to disk, and printing out the hard copy to be photo copied for dissemination. Students worked in groups of two at each station and began with the tutorial program that guided them through each phase of the process.

Students were taught how to load the program into the computer, write a brief document, edit using the REPLACE function, initialize a data diskette, save the document to the disk, and go to a printer station to get a hard copy. When this process was experienced, the students were given the assignment of producing a friendly letter to be sent to their parents telling of the experience of using a word processor. At this point the students began using the word processor as the writing tool to do all Language writing assignments. In addition to the four lab periods during each week, the students were allowed to access the eleven computer stations set up in the media center to use free time for completion of assignments. This continued through the remainder of the school year. All instruction in Language Arts was provided through model demonstrations instead of a text book. All work sheets were generated by the author on the word processor.

The data base program selected was Master Filer (Scarborough Systems, Inc.) based on ease of use for both teachers and students. Although more sophisticated data bases are available, this program was designed to be used for students and adults. The commonality of the format for both uses precluded the selection of a more complex system. This program was designed to

be menu driven using color codes to help younger users identify their location within the program at all times. The capabilities of the program include file set-up, label formatting, data entry, editing in all areas, sorting by both alpha and numeric criteria, totaling of numeric data, saving data, printing in both column and screen format, and a quiz program that allows for testing of data set up in the files.

The author used this program to set up a simple data base of information on students including parent names, addresses, home/work phone numbers, birth date, and Iowa Test scores. Students were required to use this program as a project introduced in their Computer Science curriculum. The author mentions this program in these terms because a more sophisticated program would provide better management results for instructional purposes but would be too sophisticated for student use at this grade level. The author intended to model each of the applications for student use in the Computer Science program that is not covered in this practicum.

The graphics program chosen was Print Shop (Broderbund Software). This program is capable of printing large banners, posters, letter heads, greeting cards, and can be used to edit or create graphics pictures. It comes with a graphics art disk with over one hundred ready to use graphics. Additional library disks are available with even more ready to use graphics. The author used this program to create bulletin board displays around the classroom and in the lab. Letter head was designed to enhance

parent communication and also to promote the high-tech image that was being portrayed in the classroom environment. Student birthdays were acknowledged by printing out customized cards to present to the birthday students.

The areas set up in the classroom were Writer's Wall, a display area designated for the hanging of student word processed stories and other documents. This area was accessible by all students and visitors so that displayed works could be read, critiqued, and built upon. Another was Student News, an area where all information concerning students was posted for reference purposes. Class Rules was an area where the rules of classroom behavior, rewards, and consequences of specific behaviors were graphically displayed as a reminder to students of what is expected of them. These rules were decided upon by the students. Teacher Stuff was an area behind the author's desk where schedules, schedule changes, memos, reminders, and administrative trivia was displayed for management purposes. These areas were designed by the author as models and an introduction to the Print Shop for the students. It was hoped that they would be able to create additional areas within the classroom, lab, and media center as the the needs arose during the school year. Title pages were produced for reports, stories, and other writing assignments through the remainder of the school year using the Print Shop.

The Results

The author used four tools for evaluating the results of the instructional efficiency project.

The first objective for the practicum was that teachers, students, and parents would be surveyed to determine if there was a need for improved management techniques for student informational systems. The teachers surveyed indicated that 100% of them felt that the computer was going to take a significant place in the management of classroom instruction. The survey showed that 67% of the teachers believed that the time saved using computer management programs would contribute to the overall improvement of instruction.

Students surveyed indicated that 90% did not know what their grade standing was until mid-term or report cards were handed out. Of the students surveyed, 95% indicated that if they knew day to day or at least weekly what their grade standing was that this would help them to put forth more effort in their studies.

Parent surveys indicated that 60% felt the school did not keep them informed well enough on their children's progress during the school year. Of the parents surveyed, 90% felt that better informational reports on progress would motivate them to help contribute to their child's academic progress. The parent survey showed that 75% indicated a need for a more detailed report in the area of reading progress which would point out specific areas that they would be able to provide help in (Appendix B).

These survey indicators proved that there was a need for enhanced management of student information that would strengthen the bonds of all three crucial elements in the educational process, teachers, students, and parents.

During the course of this practicum, student conferences indicated that all of the students used the weekly grade sheets to help them set priorities and goals for study habits and achievement levels. Students indicated that they looked forward to the sheets and the class statistics helped them know how they measured up in the class average. They also felt that the weekly documentation helped them keep track of their missing assignments so that there were no surprises prior to the issuance of report cards. A byproduct of this procedure indicated that anxiety levels, although not scientifically measured, appeared to be lower due to the understanding of the grading procedure. Students also indicated that they owned full responsibility in their rate of academic achievement.

Parents indicated during informal and formal conferences that the grading and reading management reports kept them more informed as to what was happening in the classroom and how their child was progressing academically. Many parents confirmed that academic discussions at home centered around achievement showed the students assuming more responsibility for their own achievement or lack of it. Discussions with parents pointed out that, as a result of the status reports, students initiated better study habits to meet assignment deadlines and thus reduced the friction

in the parent child academic relationship. The author notes here that a direct result of the enhanced parent-student relationship in the academic area greatly reduced the number of formal parent-teacher conferences held during the school year. Those that were held were within a positive setting since there were no surprises to be divulged and the results of these conferences were most often positive.

Conferences between the author and principal were scheduled at least on a monthly basis and an open-door policy established for administrative observations set up. The principal voiced concerns in regards to accessing the management files if the author was not capable of resuming instructional duties due to unforeseen misfortune. Assurances were made concerning the hard-copy files of past records that the substitute would be able to view and that key students would be able to instruct a substitute on how to use the management software in the author's absence.

The principal voiced skepticism in the area of the writing process using the word processors as apposed to the pen and paper method. It was his personal view that the software and hardware limitations would inhibit the writing process and reduce the progress of skill retention in the language arts area. As April approached and preparations for The Iowa Tests were implemented, these discussions became more frequent as the pressure mounted.

With each hour that the students spent on the keyboard and word processing software, their skill in the use of these tools

increased. As their skills increased, the sophistication of the documents handed in were reflected in both physical appearance and the reduction in grammar and spelling errors. Editing and rewrites of graded documents was seldom a frustrating task. The author was always burdened with stacks of papers to be taken home for evaluation. The time for this task was reduced as a result of being able to read over smoothly produced type-written documents as apposed to sloppily written cursive documents. At the end of the year, those students who began the program at the beginning were able to touch-type at an average rate of twenty-two words per minute with some achieving levels in the upper thirties.

The rate of growth as determined by the 1986 Iowa Test of Basic Skills would determine the effectiveness of the management program and the Language Arts program. The test results showed that 77% of the students scored at the 6th stanine or above in the area of Language Arts. The results showed that 78% of the students scored at the 6th stanine or above in Reading and 82% were at or above the 7th stanine in Math. The average class stanine was 6.5 and was the highest average among the four fifth grade classes compared on the grade level. The other class stanine averages were 6.3, 6.1, and 5.3. The adjusted average rate of growth in the grade equivalency area for Language Arts was 1.1, in Math 1.5, and a .8 in Reading.

This was achieved even though this state's students were measured under standards that were tougher than the previous

years. The norms for the 1986 test were established in 1984-85. The previous year's test was normed during the 1981-82 school year (Appendix G).

Recommendations

Based on the reactions of the students, parents, and staff involved in this program and based on the results of the evaluations, this writer felt that the program was a success. The largest concern during implementation of the program was the schedule that had to be followed. It was important to provide students with enough hands on time to learn the system and software skills as well as having enough time to complete assignments. This was done by means of monitoring student progress and lab availability on a daily basis throughout the practicum period. It is recommended that more computers and software be purchased for future use in the school and throughout the district. The ratio of students to computers is dwindling as the years progress and the skills increase. As more computers are being purchased, other areas of use are being discovered pushing the totals closer to the ideal ratio of one-to-one for maximum use.

New methods for teaching basic skills are needed desperately. Access to vital statistics and information necessary to make instructional decisions is imperative if we are going to bring the educational process on line with the expectations of an informational society. Provisions must be made to implement the

interfacing of the parents, staff, and students in the educational process. Teachers need to seek training in the use of computers in the educational system. Staff development, inservice, university courses, and community colleges are all elements of the opportunities currently available to educators for training. Incentives should be provided on district levels as well as personal motivation to be current in professional practices and techniques. The author would be willing to conduct inservice meetings for teachers at all grade levels, showing the positive as well as the negative sides of the available software for management and instructional purposes at this school or any district that is interested.

The author will continually seek new and innovative ways to use software designed for management and instruction of information at all levels. Management of informational data is a common element in all production endeavors from personal household matters to major corporate functions including the educational process. There should be a computer specialist on every building level and consultants available for personal household concerns until society makes the adjustment and can function in this informational era.

This author feels that instruction in the use of computers is essential. Young people must learn about and become proficient in the uses and misuses of computers during their formative years so that they will be able to function in the technological society that they are currently entering. Each student should acquire first hand

experiences with computers beginning now to insure that their rate of growth will be current with the rate of development. The future comfort that students will experience in the work force and the contributions made are directly dependent on when and how the introduction to technology takes place.

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Instructional Efficiency

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Appendix A



Paradise Valley Unified School District No. 69

Where Individual Excellence Is Our Goal!

Desert Springs Elementary School
6010 E. Acoma
Scottsdale, Arizona 85254

August 28, 1986

TO WHOM IT MAY CONCERN:

This letter is being written in support of a project designed by Mr. Tom Pisano dealing with instructional efficiency. This project is a first step into the computerization of instructional management in the classroom and has great applicability to his work as a teacher and as a specialist in educational computing. The improvement of informational storage and retrieval is an area that needs our attention. It will provide some of our staff, students, and parents the opportunities to participate in a computerized instructional delivery system that may be a reality in the not too distant future. The project is meaningful to Mr. Pisano's continual research in this area and has set a working example for the students, parents, and staff of how technology will change the way we teacher.

Thank you very much for your consideration of this letter.

Sincerely yours,

Mr. Don Hiemstra, Principal
Desert Springs Elementary School

DH:js

PARADISE VALLEY SCHOOL DISTRICT '69

DESERT SPRINGS ELEMENTARY SCHOOL

6020 E. Acoma Dr.
Scottsdale, AZ 85254

TO: Don Heimstra, Principal
FROM: Tom Pisano, PAC, Computer Science 
SUBJ: "Paper Chase"
DATE: Sept. 7, 1985

As a result of the many comments made during the staff meeting concerning the new attendance procedures, I would like to schedule a meeting with you to discuss some of these concerns and submit some ideas and possible solutions.

As a staff member here at Desert Springs, these concerns affect me as well as the rest of the faculty. Please bear in mind that as Program Area Coordinator, I have access to some resources that could remedy some of the concerns raised and that it is part of my job description to render services where necessary to aid the classroom teacher.

I would very much like to meet with you next week at your convenience after school hours as we are both likely to have enough time to devote to this topic without interruptions or schedule conflicts. Please get back to me on this matter.

tp



Paradise Valley Unified School District No. 69

Where Individual Excellence Is Our Goal!

Desert Springs Elementary School
6010 E. Acoma
Scottsdale, Arizona 85254

MEMO TO: Mr. Tom Pisano, P.A.C.
Computer Science

FROM: Mr. Don Hiemstra, Principal *Don H*
Desert Springs Elementary School

DATE: September 11, 1985

SUBJECT: Instructional Management

As a follow-up on our meeting Tuesday concerning instructional record-keeping within the classroom, I want to take this opportunity to say that I agree with your concerns on objective tracking and the use of computer software programs for that purpose. I am always interested in ideas that help raise the level of instructional efficiency that lead to higher student achievement levels. The amount of paperwork required of instructors seems to be rising, especially compounded with our overcrowded conditions and larger class enrollments here at Desert Springs School.

Your goals for teaching word processing to our fifth grade students are reflective of the expanding technological changes in our instructional delivery system at Desert Springs. I must admit that I am not totally sure at this time that your expectations for student writing objectives can be accomplished on this level. I would like to see you pursue this plan as well as the management plan. Please use the procedural steps for program implementation that we discussed and meet with me a couple of times each month to discuss progress. Thanks for helping to make Desert Springs an outstanding educational program.

DH:js

Instructional Efficiency

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Appendix B

TEACHER SURVEY

1. Do you feel that classroom teachers are overburdened with record keeping?

- a. always 67%
- b. usually 35%
- c. about half the time 0%
- d. seldom 0%
- e. never

2. Do you feel that record keeping is taking time away from lesson preparation during the school day?

- a. always 50%
- b. usually 50%
- c. about half the time 0%
- d. seldom 0%
- e. never 0%

3. Do you assign test scoring to parent volunteers?

- a. always 0%
- b. usually 17%
- c. about half the time 0%
- d. seldom 33%
- e. never 50%

4. Do you take home paperwork on a daily basis?

- a. always 67%
- b. usually 33%
- c. about half the time 0%
- d. seldom 0%
- e. never 0%

5. Do you conduct small group review based on test results?

- a. always 33%
- b. usually 50%
- c. about half the time 17%
- d. seldom 0%
- e. never 0%

6. Do you base instructional progression on objective mastery as determined by the results of end of unit tests?

- a. always 17%
- b. usually 50%
- c. about half the time 33%
- d. seldom 0%
- e. never 0%

7. Do you keep track of objective mastery in your reading program?

- a. always 33%
- b. usually 0%
- c. about half the time 50%
- d. seldom 17%
- e. never 0%

8. Do you find it time consuming to keep track of each student's objective mastery rate?

- a. always 100%
- b. usually 0%
- c. about half the time 0%
- d. seldom 0%
- e. never 0%

9. Do you use a computerized management program to check and analyze end of unit objective mastery?

- a. always 0%
- b. usually 0%
- c. about half the time 0%
- d. seldom 0%
- e. never 100%

10. Do you have access to computerized management hardware/software?

- a. always 0%
- b. usually 0%
- c. about half the time 0%
- d. seldom 0%
- e. never 100%

11. If this management program were available for tracking reading objectives and you were provided with training, how often would you be willing to use it?

- a. always 67%
- b. usually 33%
- c. about half the time 0%
- d. seldom 0%
- e. never 0%

12. Would you use the prescriptive analysis of the management tool for grouping, review, and planning purposes?

- a. always 50%
- b. usually 50%
- c. about half the time 0%
- d. seldom 0%
- e. never 0%

13. How often do you calculate grade averages for individual student inquiries during the week?

- a. always 17%
- b. usually 0%
- c. about half the time 0%
- d. seldom 33%
- e. never 0%

14. Do you send home mid-term grade averages for all of your students in every subject?

- a. always 17%
- b. usually 0%
- c. about half the time 0%
- d. seldom 30%
- e. never 33%

15. If you could push the button and get a printout of student averages would you be willing to send home grade averages on a more frequent basis?

- | | |
|------------------------|------|
| a. always | 100% |
| b. usually | 0% |
| c. about half the time | 0% |
| d. seldom | 0% |
| e. never | 0% |

16. Do you feel that if parents-teachers-students could be kept up to date on current grade averages that this would help raise student achievement levels?

- | | |
|------------------------|-----|
| a. always | 67% |
| b. usually | 33% |
| c. about half the time | 0% |
| d. seldom | 0% |
| e. never | 0% |

17. Do you spend more time than you think is necessary calculating grades for report cards?

- | | |
|------------------------|-----|
| a. always | 67% |
| b. usually | 33% |
| c. about half the time | 0% |
| d. seldom | 0% |
| e. never | 0% |

18. Would you use a grading program if you had access to hardware and software?

- | | |
|------------------------|-----|
| a. always | 67% |
| b. usually | 33% |
| c. about half the time | 0% |
| d. seldom | 0% |
| e. never | 0% |

19. When you budget time to change or produce bulletin boards, do you use more than the allotted time?

- | | |
|------------------------|-----|
| a. always | 33% |
| b. usually | 67% |
| c. about half the time | 0% |
| d. seldom | 0% |
| e. never | 0% |

20. If you could use a program to generate banners and pictures for classroom centers and displays, how often would you use it?

- | | |
|------------------------|-----|
| a. always | 33% |
| b. usually | 17% |
| c. about half the time | 50% |
| d. seldom | 0% |
| e. never | 0% |

21. If you could use a program to generate word searches, crossword puzzles, and worksheets, how often would you use it?

- | | |
|------------------------|-----|
| a. always | 83% |
| b. usually | 17% |
| c. about half the time | 0% |

- | | |
|-----------|----|
| d. seldom | 0% |
| e. never | 0% |

22. If you had a computer at your desk, how often would you use it?

- | | |
|------------------------|------|
| a. always | 100% |
| b. usually | 0% |
| c. about half the time | 0% |
| d. seldom | 0% |
| e. never | 0% |

23. Do you ever wish that the writing, editing, and backtracking of lesson plans could be cut down and still continue to accomplish the same results?

- | | |
|------------------------|-----|
| a. always | 67% |
| b. usually | 33% |
| c. about half the time | 0% |
| d. seldom | 0% |
| e. never | 0% |

24. If your students handed in their written reports and essays as word processed documents, would you feel that the time it takes for evaluation would be cut down?

- | | |
|------------------------|------|
| a. always | 100% |
| b. usually | 0% |
| c. about half the time | 0% |
| d. seldom | 0% |
| e. never | 0% |

25. Do you feel that keyboard and word processing skills should be a part of the elementary curriculum?

- | | |
|------------------------|------|
| a. always | 100% |
| b. usually | 0% |
| c. about half the time | 0% |
| d. seldom | 0% |
| e. never | 0% |

26. If your students could use word processors for writing, do you feel that this skill would enhance the quality and quantity of their writing?

- | | |
|------------------------|-----|
| a. always | 50% |
| b. usually | 33% |
| c. about half the time | 17% |
| d. seldom | 0% |
| e. never | 0% |

27. Do you feel that word processing is a motivation for improved writing skills on a student level?

- | | |
|------------------------|-----|
| a. always | 50% |
| b. usually | 50% |
| c. about half the time | 0% |
| d. seldom | 0% |
| e. never | 0% |

28. If you could use the computer to do many of the tasks mentioned above, do you feel that the

time saved would contribute to the improvement of overall instruction?

- | | |
|------------------------|-----|
| a. always | 67% |
| b. usually | 33% |
| c. about half the time | 0% |
| d. seldom | 0% |
| e. never | 0% |

29. Do you feel that the computer is going to take a significant place in the management of classroom instruction?

- | | |
|------------------------|------|
| a. always | 100% |
| b. usually | 0% |
| c. about half the time | 0% |
| d. seldom | 0% |
| e. never | 0% |

30. Do you feel that teachers should be provided with the proper inservice to gain the skills for the implementation of high-tech management?

- | | |
|------------------------|------|
| a. always | 100% |
| b. usually | 0% |
| c. about half the time | 0% |
| d. seldom | 0% |
| e. never | 0% |

PARENT SURVEY

1. Do you think that your students should be exposed to computers in the public school system?

yes 90%

no 2%

maybe 8%

2. Do you think that exposure to computers can begin in the elementary grades?

yes 86%

no 4%

maybe 10%

3. Would you be willing to allow your fifth grade students to take part in a computer science program during this school year?

yes 100%

no 0%

maybe 0%

4. Would you like to have keyboard skills taught as a beginning step?

yes 95%

no 0%

maybe 5%

5. When keyboard skills have reached a sufficient level, would you like to see your child learn word processing?

yes 93%

no 0%

maybe 7%

6. Would you like to take computer training here at the school if classes were offered to parents?

yes 45%

no 33%

maybe 22%

7. Are you considering the purchase of a computer system for home use in the near future?

yes 22%

no 48%

maybe 30%

8. Do you think that the school keeps you informed well enough on your students academic progress during the school year?

yes 25%

no 60%

maybe 15%

9. If you were kept informed more often as to your child's grade standing, do you think you would be able to help raise the grade level through encouragement?

yes 90%

no 0%

maybe 10%

10. If you were given a reading report showing weaknesses at the end of each reading unit, do you think that you could help at home with these problem areas?

yes 75%

no 10%

maybe 15%

STUDENT SURVEY

1. Have you ever worked on a computer before coming to this classroom?

yes 75%

no 25%

2. Do you like working with computers?

yes 95%

no 1%

don't know 4%

3. If you have used a computer, where have you used it?

school 5%

home 65%

other 30%

4. Do you have a computer at home that you can use?

yes 65%

no 35%

5. If you have taken computer classes before, what kind of things were you taught?

games programming typing word processing

80%

20%

0%

0%

6. Would you like to have the computer teach you how to type?

yes 75%

no 10%

maybe 15%

7. Would you like to learn how to use the computer to do your writing on if it were easier than using pen and paper?

yes 90%

no 0%

maybe 10%

8. Would you like to have a class that you go to everyday to learn how to use computers to do everyday things?

yes 100%

no 0%

maybe 0%

9. Do you always know what your grade is in your school subjects? This means everyday not just when you get a report card.

yes 5%

no 90%

maybe 5%

10. Would you like to know what your grade is at least once a week?

yes 98%

no 1%

maybe 1%

11. Do you think knowing how you are doing during the report period will help you work harder to get better grades?

yes 95%

no 0%

maybe 5%

12. If you think that you do not want to work with computers this year or as often, would you like to transfer to another fifth grade classroom?

yes 0%

no 100%

maybe 0%

Instructional Efficiency

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Appendix C

SOFTWARE LIST

Bank Street Writer
Commodore 64 and Apple IIe versions
Scholastic version
Intentional Educations Inc., Bank Street College of Education
and Franklin E. Smith
Scholastic Inc., New York 1984

Report Card
Apple IIe version
Sensible Software, Inc.
1982 by Marc Rinquette

American Readers Computer Management System
Crossing Boundaries
D.C. Heath and Company 1983

Master Type
Scarborough Systems, Inc.
Lightning Software
1983 by Bruce Zweig

Master Filer
Scarborough Systems, Inc.
1985 Commodore 64 version

The Print Shop
Broderbund Software, Inc.
1984 Commodore 64 version

Print Shop Graphics Library
Broderbund Software, Inc.
1985 Commodore 64 version

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Appendix D

FST NAME: STUDENT
LAST NAME: A
ADDRESS: 1234 MAIN
CTY/ST/ZIP: HOMEVILLE, USA, 00009
HOME PHONE: 555-1212
WORK PHONE: 555-9999
FATHER: JOHN
MOTHER: MARY
BIRTH DAY: APRIL 9, 1976
GENDER: BOY

FST NAME: STUDENT
LAST NAME: B
ADDRESS: 5678 EAST ST.
CTY/ST/ZIP: HOMEVILLE, USA, 00009
HOME PHONE: 555-2424
WORK PHONE: 555-8888
FATHER: JOE
MOTHER: JANE
BIRTH DAY: MAY 8, 1976
GENDER: GIRL

FST NAME: STUDENT
LAST NAME: C
ADDRESS: 1357 JONES DR.
CTY/ST/ZIP: HOMEVILLE, USA, 00009
HOME PHONE: 555-7878
WORK PHONE: 555-8888
FATHER: ED
MOTHER: HELEN
BIRTH DAY: JUNE 19, 1976
GENDER: BOY

FST NAME: STUDENT
LAST NAME: D
ADDRESS: 6677 SOUTH ST.
CTY/ST/ZIP: HOMEVILLE, USA, 00009
HOME PHONE: 555-7766
WORK PHONE: 555-3433
FATHER: HARRY
MOTHER: ELMA
BIRTH DAY: SEPTEMBER 29, 1976
GENDER: GIRL

FST NAME: STUDENT
LAST NAME: E
ADDRESS: 4455 EAST AVE.
CTY/ST/ZIP: HOMEVILLE, USA, 00009
HOME PHONE: 555-1155
WORK PHONE: 555-8127
FATHER: BILL
MOTHER: ALICE
BIRTH DAY: OCTOBER 3, 1976
GENDER: GIRL

FST NAME: STUDENT
LAST NAME: F
ADDRESS: 6600 ELM ST.
CTY/ST/ZIP: HOMEVILLE, USA, 00009
HOME PHONE: 555-5155
WORK PHONE: 555-4445
FATHER: FRED
MOTHER: EDWINA
BIRTH DAY: NOVEMBER 12, 1986
GENDER: BOY

CLASS LIST

FST NAME	LAST	ADDRESS	CTY/ST/ZIP	HOME PHONE	GENDER
-----	-----	-----	-----	-----	-----
STUDENT	A	1234 MAIN	HOMEVILLE, USA, 00009	555-1212	MALE
STUDENT	B	5678 EAST ST.	HOMEVILLE, USA, 00009	555-2424	FEMALE
STUDENT	C	1357 JONES DR.	HOMEVILLE, USA, 00009	555-7878	MALE
STUDENT	D	6677 SOUTH ST.	HOMEVILLE, USA, 00009	555-7766	FEMALE
STUDENT	E	4455 EAST AVE.	HOMEVILLE, USA, 00009	555-1155	FEMALE
STUDENT	F	6600 ELM ST.	HOMEVILLE, USA, 00009	555-5155	MALE
STUDENT	G	7712 WILLOW DR.	HOMEVILLE, USA, 00009	555-9909	MALE
STUDENT	H	5674 OAK LN.	HOMEVILLE, USA, 00009	555-9090	MALE

8 records

LIST OF MALE STUDENTS

FST NAME	LASTADDRESS	CTY/ST/ZIP	HOME PHONE	GENDER
-----	-----	-----	-----	-----
STUDENT A	1234 MAIN	HOMEVILLE, USA, 00009	555-1212	BOY
STUDENT C	1357 JONES DR.	HOMEVILLE, USA, 00009	555-7878	BOY
STUDENT F	6600 ELM ST.	HOMEVILLE, USA, 00009	555-5155	BOY
STUDENT G	7712 WILLOW DR.	HOMEVILLE, USA, 00009	555-9909	BOY

4 records

LIST OF FEMALE STUDENTS

FST	NAME	LAST	ADDRESS	CTY/ST/ZIP	HOME	PHONE	GENDER
-----	-----	-----	-----	-----	-----	-----	-----
STUDENT	B	5678	EAST ST.	HOMEVILLE, USA, 00009	555-2424		GIRL
STUDENT	D	6677	SOUTH ST.	HOMEVILLE, USA, 00009	555-7766		GIRL
STUDENT	E	4455	EAST AVE.	HOMEVILLE, USA, 00009	555-1155		GIRL
STUDENT	H	5674	OAK LN.	HOMEVILLE, USA, 00009	555-9090		GIRL

4 records

IOWA TEST-LANG-SORT LOW

LAST NAME -----	FST NAME -----	4TH LANG -----	5TH LANG -----	GENDER -----
H	STUDENT	3.8		GIRL
F	STUDENT	3.9		BOY
D	STUDENT	4.2		GIRL
E	STUDENT	4.3		GIRL
C	STUDENT	4.4		BOY
S	STUDENT	4.5		GIRL
A	STUDENT	4.9		BOY
G	STUDENT	5.2		BOY

8 records

IOWA TEST-READ-SORT HIGH

LAST NAME	FST NAME	4TH READ	5TH READ	GENDER
-----	-----	-----	-----	-----
D	STUDENT	5.2		GIRL
G	STUDENT	5.1		BOY
A	STUDENT	5.1		BOY
B	STUDENT	4.7		GIRL
C	STUDENT	4.7		BOY
H	STUDENT	4.7		GIRL
E	STUDENT	4.5		GIRL
F	STUDENT	4.2		BOY

8 records

IOWA TEST-MATH-SORT HIGH

LAST NAME	FST NAME	4TH MATH	5TH MATH	GENDER
-----	-----	-----	-----	-----
D	STUDENT	5.7		
C	STUDENT	4.9		GIRL
E	STUDENT	4.8		BOY
A	STUDENT	4.8		GIRL
F	STUDENT	4.6		BOY
G	STUDENT	4.6		BOY
H	STUDENT	4.4		BOY
B	STUDENT	4.4		GIRL
				GIRL

8 records

Instructional Efficiency

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Appendix E

CLASS: READING
DATE: SEPT.20 1985

CLASS ROSTER:

1:	STUDENT A.....	JETS
2:	STUDENT B.....	JETS
3:	STUDENT C.....	ROBINS
4:	STUDENT D.....	ROBINS
5:	STUDENT E.....	ROBINS
6:	STUDENT F.....	JETS
7:	STUDENT G.....	ROBINS
8:	STUDENT H.....	CHAMPS
9:	STUDENT I.....	JETS
10:	STUDENT J.....	CHAMPS
11:	STUDENT K.....	CHAMPS
12:	STUDENT L.....	ROBINS
13:	STUDENT M.....	CHAMPS
14:	STUDENT N.....	JETS
15:	STUDENT O.....	JETS

CLASS: READING
DATE: SEPT.20 1985

ACTIVITY #1: WRKBK PG 6
WEIGHT:1 TOTAL:25

1: STUDENT A.....	24	96.0%
2: STUDENT B.....	23	92.0%
3: STUDENT C.....	NO GRADE	
4: STUDENT D.....	24	96.0%
5: STUDENT E.....	25	100.0%
6: STUDENT F.....	25	100.0%
7: STUDENT G.....	19	76.0%
8: STUDENT H.....	NO GRADE	
9: STUDENT I.....	21	84.0%
10: STUDENT J.....	20	80.0%
11: STUDENT K.....	24	96.0%
12: STUDENT L.....	0	0.0%
13: STUDENT M.....	17	68.0%
14: STUDENT N.....	25	100.0%
15: STUDENT O.....	16	64.0%

AVERAGE MARK: 20.23 / 25

CLASS: READING
DATE: SEPT.20 1985

ACTIVITY #1: WRKBK PG 6
WEIGHT:1 TOTAL:25

1: STUDENT F.....	25	100.0%
2: STUDENT N.....	25	100.0%
3: STUDENT E.....	25	100.0%
4: STUDENT D.....	24	96.0%
5: STUDENT A.....	24	96.0%
6: STUDENT K.....	24	96.0%
7: STUDENT B.....	23	92.0%
8: STUDENT I.....	21	84.0%
9: STUDENT J.....	20	80.0%
10: STUDENT G.....	19	76.0%
11: STUDENT M.....	17	68.0%
12: STUDENT O.....	16	64.0%
13: STUDENT L.....	0	0.0%
14: STUDENT H.....	NO GRADE	
15: STUDENT C.....	NO GRADE	

AVERAGE MARK: 20.23 / 25

CLASS: READING
DATE: SEPT.20 1985

ACTIVITIES SO FAR:

	NAME	WEIGHT	TOTAL
	-----	-----	-----
1:	WRKBK PG 6	1	25
2:	STDY QUS PG 24	3	15
3:	VOCAB QUIZ 1	1	20

TOTAL WEIGHT: 5

CLASS: READING
DATE: SEPT.20 1985

STUDENT 1: STUDENT A

JETS

NAME	WEIGHT	MARK	TOTAL	PERCENT
1: WRK BK PG 6	1	24	/ 25	96.0%
2: STDY QUS PG 24	3	12	/ 15	80.0%
3: VOCAB QUIZ 1	1	15	/ 20	75.0%

PERCENTAGE: 82.2 %

CLASS: READING
DATE: SEPT.20 1985

CLASS TABLE OF GRADES:

ACTIVITY #	1	2	3	AVERAGE
=====	===	===	===	=====
1:STUDENT A	96	80	75	82.2%
2:STUDENT B	92	73	85	79.4%
3:STUDENT C	--	100	95	98.8%
4:STUDENT D	96	40	100	63.2%
5:STUDENT E	100	60	95	75.0%
6:STUDENT F	100	87	100	92.0%
7:STUDENT G	76	80	60	75.2%
8:STUDENT H	--	67	75	68.8%
9:STUDENT I	84	100	85	93.8%
10:STUDENT J	80	93	85	89.0%
11:STUDENT K	96	73	95	82.2%
12:STUDENT L	0	60	75	51.0%
13:STUDENT M	68	87	90	83.6%
14:STUDENT N	100	80	70	82.0%
15:STUDENT O	64	73	100	76.8%

CLASS AVERAGE:79.53 %

CLASS: READING
DATE: SEPT.20 1985

CLASS TABLE OF GRADES:

ACTIVITY #	1	2	3	AVERAGE
=====	===	===	===	=====
1:STUDENT C	--	100	95	98.8%
2:STUDENT I	84	100	85	93.8%
3:STUDENT F	100	87	100	92.0%
4:STUDENT J	80	93	85	89.0%
5:STUDENT M	68	87	90	83.6%
6:STUDENT K	96	73	95	82.2%
7:STUDENT A	96	80	75	82.2%
8:STUDENT N	100	80	70	82.0%
9:STUDENT B	92	73	85	79.4%
10:STUDENT O	64	73	100	76.8%
11:STUDENT G	76	80	60	75.2%
12:STUDENT E	100	60	95	75.0%
13:STUDENT H	--	67	75	68.8%
14:STUDENT D	96	40	100	63.2%
15:STUDENT L	0	60	75	51.0%

CLASS AVERAGE:79.53 %

CLASS: READING
DATE: SEPT.20 1985

OVERALL AVERAGES:

1: STUDENT A.....	82.2 %
2: STUDENT B.....	79.4 %
3: STUDENT C.....	98.8 %
4: STUDENT D.....	63.2 %
5: STUDENT E.....	75.0 %
6: STUDENT F.....	92.0 %
7: STUDENT G.....	75.2 %
8: STUDENT H.....	68.8 %
9: STUDENT I.....	93.8 %
10: STUDENT J.....	89.0 %
11: STUDENT K.....	82.2 %
12: STUDENT L.....	51.0 %
13: STUDENT M.....	83.6 %
14: STUDENT N.....	82.0 %
15: STUDENT O.....	76.8 %

CLASS AVERAGE: 79.53 %

CLASS: READING
DATE: SEPT.20 1985

OVERALL AVERAGES:

1: STUDENT C.....	98.8 %
2: STUDENT I.....	93.8 %
3: STUDENT F.....	92.0 %
4: STUDENT J.....	89.0 %
5: STUDENT M.....	83.6 %
6: STUDENT K.....	82.2 %
7: STUDENT A.....	82.2 %
8: STUDENT N.....	82.0 %
9: STUDENT B.....	79.4 %
10: STUDENT O.....	76.8 %
11: STUDENT G.....	75.2 %
12: STUDENT E.....	75.0 %
13: STUDENT H.....	68.8 %
14: STUDENT D.....	63.2 %
15: STUDENT L.....	51.0 %

CLASS AVERAGE: 79.53 %

CLASS: READING
DATE: SEPT.20 1985

AVERAGES AND LETTER GRADES:

1: STUDENT A.....	82.2 %	B-
2: STUDENT B.....	79.4 %	C+
3: STUDENT C.....	98.8 %	A
4: STUDENT D.....	63.2 %	D
5: STUDENT E.....	75.0 %	C+
6: STUDENT F.....	92.0 %	A
7: STUDENT G.....	75.2 %	C+
8: STUDENT H.....	68.8 %	C-
9: STUDENT I.....	93.8 %	A
10: STUDENT J.....	89.0 %	B+
11: STUDENT K.....	82.2 %	B-
12: STUDENT L.....	51.0 %	D
13: STUDENT M.....	83.6 %	B
14: STUDENT N.....	82.0 %	B-
15: STUDENT O.....	76.8 %	C+

CLASS AVERAGE: 79.53 %

CLASS: READING
DATE: SEPT.20 1985

AVERAGES AND LETTER GRADES:

1: STUDENT C.....	98.8 %	A
2: STUDENT I.....	93.8 %	A
3: STUDENT F.....	92.0 %	A
4: STUDENT J.....	89.0 %	B+
5: STUDENT M.....	83.6 %	B
6: STUDENT K.....	82.2 %	B-
7: STUDENT A.....	82.2 %	B-
8: STUDENT N.....	82.0 %	B-
9: STUDENT B.....	79.4 %	C+
10: STUDENT O.....	76.8 %	C+
11: STUDENT G.....	75.2 %	C+
12: STUDENT E.....	75.0 %	C+
13: STUDENT H.....	68.8 %	C-
14: STUDENT D.....	63.2 %	D
15: STUDENT L.....	51.0 %	D

CLASS AVERAGE: 79.53 %

Instructional Efficiency

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Appendix F

CLASS LIST
CROSSING BOUNDARIES
AMERICAN READERS, 1983

TODAY'S DATE: SEP 20, 1985
TEACHER: PISANO

TODAY'S DATE: SEP 20, 1985
TEACHER: PISANO

STUDENT'S NAME _____

I.D.

(1)	STUDENT A	PISANO
(2)	STUDENT B	PISANO
(3)	STUDENT C	PISANO
(4)	STUDENT D	PISANO
(5)	STUDENT E	PISANO
(6)	STUDENT F	PISANO
(7)	STUDENT G	PISANO
(8)	STUDENT H	PISANO
(9)	STUDENT I	PISANO
(10)	STUDENT J	PISANO
(11)	STUDENT K	PISANO
(12)	STUDENT L	PISANO
(13)	STUDENT M	PISANO
(14)	STUDENT N	PISANO
(15)	STUDENT O	PISANO

PROGRESS REPORT
STARTING SEP 20, 1985-- ENDING SEP 20, 1985
CROSSING BOUNDARIES
AMERICAN READERS, 1983

STUDENT: STUDENT A
GROUP ID: PISANO
GRADE: FIFTH
CLASS: READING
TODAY'S DATE: SEP 20, 1985
TEACHER: PISANO

OBJECTIVES MASTERED -- DATE

TOTAL OBJECTIVES MASTERED: 0

(T) MASTERY ASSIGNED BY TEACHER.

OBJECTIVES NOT MASTERED --

TOTAL OBJECTIVES NOT MASTERED: 0

(T) MASTERY ASSIGNED BY TEACHER.

PARENT'S SIGNATURE:

TEACHER'S COMMENTS:

STUDENT TEST HISTORY
LEVEL 5
CROSSING BOUNDARIES
AMERICAN READERS, 1983

STUDENT: STUDENT A
GROUP ID: PISANO
GRADE: FIFTH
CLASS: READING

TODAY'S DATE: SEP 20, 1985
TEACHER: PISANO

OBJS TESTED	OBJS MASTERED	PCT OF OBJS MASTERED	PCT OF QUES CORR. PRE POST	DATE
----------------	------------------	-------------------------	----------------------------------	------

TOTAL TESTS TAKEN: 0 PRETEST
0 POSTTEST

AVERAGE SCORES: 0% PRETEST
0% POSTTEST

STUDENT STUDY PLAN
CROSSING BOUNDARIES
AMERICAN READERS, 1983

STUDENT: STUDENT A
GROUP ID: PISANO
GRADE: FIFTH
CLASS: READING

TODAY'S DATE: SEP 20, 1985
TEACHER: PISANO

OBJECTIVE

PRESCRIPTION

STUDENT HAS MASTERED ALL TESTED OBJECTIVES

TEST RESULTS
LEVEL 5, TEST 1 , PRETEST
CROSSING BOUNDARIES
AMERICAN READERS, 1983

STUDENT: STUDENT A
GROUP ID: PISANO
GRADE: FIFTH
CLASS: READING
TODAY'S DATE: SEP 20, 1985
TEACHER: PISANO

STUDENT ANSWERS: -----
1-X 2-X 3-X 4-X 5-X 6-X 7-X 8-X 9-X 10-X 11-X 12-X 13-X 14-X 15-X
16-X 17-X 18-X 19-X 20-X 21-X 22-X 23-X 24-X 25-X 26-X 27-X 28-X 29-X 30-X
31-X 32-X 33-X 34-X 35-X 36-X 37-X 38-X 39-X 40-X 41-X 42-X 43-X 44-X 45-X
46-X 47-X 48-X 49-X 50-X

OBJECTIVE SUMMARY: -----
OBJECTIVE DESCRIPTION SCORE CRITERION RESULT

OBJECTIVES: 0 TESTED 0 MASTERED (0% MASTERED)
TEST ITEMS: 0 TESTED 0 CORRECT (0% CORRECT)

(*) MASTERED OBJECTIVES (-) NON-MASTERED OBJECTIVES
(T) MASTERY ASSIGNED BY THE TEACHER

Instructional Efficiency

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Appendix G

CHANGING TEST SCORES

Arizona pupils will be measured with tougher standards in the 1986 statewide testing program. Pupils in Grades 1-8 will be administered the Iowa Tests of Basic Skills (ITBS). The norms for the 1986 test were established in 1984-85. Last year's test was normed during the 1981-82 school year.

During the past three decades, national school achievement has shown an irregular pattern. Test achievement scores showed moderate increase between 1955 and 1970. Scores for pupils in grades 4-8 declined dramatically between 1970 and 1977. Since 1977, this trend has been reversed. The data were provided from the national standardizations of the ITBS in 1955, 1963, 1970, 1977, 1981, and 1984.

The "toughness" of the norms established during any standardization is related directly to the level of achievement at the time. Thus, pupils were measured with weaker standards on tests normed in 1977 than those normed in 1981 and 1984. As a result, earlier test results appear "inflated" when compared to results of later tests.

Because of the different norms bases, it will be more difficult for Arizona pupils to score high on the 1986 ITBS than it was on the 1985 ITBS.

Because of the "weaker" norms base, Composite grade-equivalents for equivalent raw scores were higher on last year's ITBS than they will be on the 1986 test. Those who wish to compare this year's composite results with those from 1985 should subtract the following numbers of months from the 1985 grade-equivalent scores for the Composite:

Grade 2	2 months
Grade 3	1 month
Grade 4	2 months
Grade 5	1 month
Grade 6	1 month
Grade 7	2 months
Grade 8	3 months

Grade 1 Composite grade-equivalent scores showed negligible change.

For example, suppose that a 4th-grader achieves a Composite grade-equivalent of 49 (Grade 4, ninth month) on the 1986 test. Suppose further that he or she had obtained a Composite grade-equivalent of 37 on the 1985 test in the third grade. Subtract one month from the 1985 score to obtain a corrected grade-equivalent score of 36. A Composite growth of 13 months (49-36) has been achieved since last year.

The changes will be more moderate from 1985 to 1986 than they were from 1984 to 1985. In most cases, they are not significant. However, any comparisons between scores between the two years should be made with these differences in mind.

	STUDENT	5TH GRADE EQUIV.	STANINE	4TH GRADE EQUIV.	STANINE	ADJUSTED GROWTH G.E.	STANINE
1	BRENT	7.8	7	5.8	7	2.2	1
2	MIKE	7.8	9	5.5	6	2.5	4
3	JENNY	6.4	6	5.9	7	.7	0
4	NIKKI	6.5	6	-	-	-	-
5	KATHY	7.4	8	6.7	8	.9	1
6	JUSTIN	7.0	7	6.8	8	.4	0
7	GEOFFREY	6.7	7	-	-	-	-
8	KRISTIN	6.3	6	6.3	8	.2	-1
9	MACY	6.5	6	-	-	-	-
10	BOBBY	7.1	7	-	-	-	-
11	JANEILLE	6.4	6	5.5	6	1.1	1
12	JOEL	8.9	9	6.7	8	2.4	2
13	SHANNON	7.0	7	5.2	6	2.0	2
14	VICKI	8.3	9	5.6	6	1.9	4
15	LARRY	8.2	9	6.7	8	1.7	2
16	JARED	7.4	8	-	-	-	-
17	MARY	8.3	9	-	-	-	-
18	PHIL	8.2	9	6.8	9	1.7	1
19	MICHELLE	6.6	6	7.0	9	-2	-1
20	SETH	6.9	9	5.6	6	3.5	4
21	STEPHANIE	7.1	7	5.8	7	1.5	2
22	MICHAEL	7.6	8	6.0	7	1.8	2
23	TRACIE	8.3	9	6.8	9	1.7	1
24	GINA	6.9	7	6.2	7	.9	1
25	JOHNNY	7.2	7	6.4	8	1.0	0
26	STACEY	8.0	9	6.9	9	1.3	1
27	ERICKA	8.5	9	7.0	7	1.7	1
28	LISA	7.6	8	6.4	8	1.4	1
29	MARYA	7.4	8	5.6	6	2.0	3
30	STEPHANIE	7.4	8	5.5	6	2.1	3
31	PAUL	7.4	8	6.5	8	1.1	1
32	NICOLE	7.3	7	5.3	6	2.2	2

STUDENT	5TH GRADE EQUIV.	STANINE	4TH GRADE EQUIV.	ADJUSTED GROWTH G.E	STANINE
1 MIKE	6.1	5	5.8	.5	0
2 MACIE	6.6	6	-	-	-
3 JENNY	5.9	5	4.3	1.8	2
4 NIKKI	6.6	6	-	-	-
5 TRICIAL	5.6	5	-	-	-
6 JUSTIN	7.3	7	6.7	.8	1
7 GEOFFREY	6.6	6	6.0	.8	1
8 TIM	7.5	7	6.9	.8	0
9 RICHARD	5.0	5	7.0	-1.0	-2
10 ANNA	6.3	6	5.4	1.1	1
11 MACY	7.5	7	-	-	-
12 MELISA	7.6	7	6.3	1.5	1
13 MIKE	5.0	4	5.4	-1.2	-1
14 JOEL	9.2	9	7.5	2.0	2
15 SHANNON	6.9	6	6.1	1.0	0
16 DAVID	8.6	8	6.5	2.3	2
17 MARY	7.6	7	-	-	-
18 PHIL	6.5	6	6.3	.4	0
19 TORI	5.5	5	6.5	-1.8	-1
20 KEVIN	6.9	6	6.1	1.0	0
21 KIM	6.2	6	-	-	-
22 MICHELLE	6.5	6	6.3	.4	0
23 MARK	6.5	6	5.8	.9	1
24 SETH	7.8	7	6.7	1.3	1
25 LAURIE	6.8	6	5.6	1.2	1
26 SCOTT	6.1	8	-	-	-
27 GINA	5.7	5	5.4	.5	0
28 TASHA	6.5	6	5.1	1.6	2
29 STACEY	7.5	7	8.1	-1.4	-1
30 LISA	6.6	6	7.0	-1.3	0
31 MARYA	9.2	9	8.7	.7	1
32 MIKE	7.5	7	5.8	1.9	2

STUDENT	5TH GRADE EQUIV.	STANINE	4TH GRADE EQUIV.	STANINE	ADJUSTED GROWTH G.E.	STANINE
1 MICHELLE	4.8	4	4.3	5	.7	0
2 TIM	8.2	8	6.2	7	2.1	2
3 BRENT	4.6	4	4.0	4	.8	1
4 KATIE	7.2	7	6.9	8	.5	0
5 CARRIE	8.0	8	-	-	-	-
6 MIKE	5.6	5	5.6	6	.2	0
7 NIKKI	6.7	6	-	-	-	-
8 CHRIS	8.4	8	-	-	-	-
9 TRICIA	5.9	5	5.4	6	.8	0
10 JUSTIN	6.4	6	7.2	7	- .7	0
ANDREA	7.4	7	6.6	7	.9	1
GEOFFREY	7.8	7	6.9	8	1.1	0
NNA	6.8	6	6.7	7	.3	0
EVEN	6.2	5	5.3	6	1.1	0
11 IE	6.4	6	-	-	-	-
16	6.6	6	-	-	-	-
17	9.3	9	6.7	7	2.8	3
18 PY	7.0	6	6.5	7	.7	0
19 M.J	7.2	7	5.5	6	1.9	2
20 DAV.	9.2	9	7.5	8	1.9	2
21 TORI	6.8	6	5.8	6	1.2	1
22 CHERYL	8.6	8	8.1	9	.7	0
23 KIM	7.8	7	-	-	-	-
24 MIKE	6.4	6	4.1	4	2.5	3
25 SHELLY	5.8	5	4.9	5	1.1	1
26 MICHELLE	8.2	8	6.5	7	1.9	2
27 TRINA	6.6	6	5.9	6	.9	1
28 GINA	8.2	8	7.7	9	.7	0
29 STACEY	7.0	6	6.6	7	.5	0
30 NICOLE	.2	5	5.2	5	1.2	1

END

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